

Search Plan and Results

Question

[Is intake of dietary fat associated with adiposity in children? \(DGAC 2010\)](#)

Date Searched

6/25/2009

Inclusion Criteria

- Publication date from September 2003 through June 25, 2009
- English language
- Human subjects
- Children (zero to 18 years)
- Included at least one outcome measure of adiposity (e.g., body weight, body mass index, skinfolds, percent body fat).

Exclusion Criteria

- Conducted in developing countries
- Published in journals that are not peer-reviewed
- Included no measure of adiposity (e.g., body weight, body mass index, skinfolds, percent body fat)
- Involved exclusively children 18 years old
- Treatment trial conducted for
- Prevention trial conducted for
- Treatment trial involved <10 subjects total (or <10 in the intervention group)
- Prevention trial involved
- Treatment trials involving pharmacological interventions (because of lack of research in these areas)
- Cross-sectional studies.

Search Terms: Search Vocabulary

("Adiposity"[majr] OR "Overweight"[majr] OR "Obesity"[majr] OR "Weight Gain"[majr] OR "Body Weights and Measures"[Majr]) AND ("Dietary Fats"[majr] OR fat intake*) AND "english and humans"[Filter] All Child: 0-18 years.

Electronic Databases

PubMed.

Total hits from all electronic database searches: 291

Total articles identified to review from electronic databases: 43

Articles Identified Via Handsearch or Other Means

- *Articles included via hand search: One*
- *Articles included from the ADA Evidence Review: 21.*

Summary of Articles Identified to Review

Number of Primary Articles Identified: 7

Number of Review Articles Identified: 0

Total Number of Articles Identified: 7

Number of Articles Reviewed but Excluded: 37

List of Articles Included for Evidence Analysis

Included Articles (28)

USDA NEL (7)

Alexy U, Sichert-Hellert W, Kersting M, Schultze-Pawlitschko V. [Pattern of long-term fat intake and BMI during childhood and adolescence: Results of the DONALD Study](#). *Int J Obes Relat Metab Disord*. 2004 Oct; 28(10): 1, 203-1, 209. PMID: 15211368.

Caballero B, Clay T, Davis SM, Ethelbah B, Rock BH, Lohman T, Norman J, Story M, Stone EJ, Stephenson L, Stevens J; Pathways Study Research Group. [Pathways: a school-based, randomized controlled trial for the prevention of obesity in American Indian schoolchildren](#). *Am J Clin Nutr*. 2003 Nov; 78(5): 1, 030-1, 038. PMID: 14594792.

Lauer RM, Obarzanek E, Kwiterovich PO, Kimm SYS, Hunsberger SA, Barton BA, Van Horn L, Stevens VJ, Lqasser NL, Robson AM, Franklin FA, Simons-Morton DG. Efficacy and safety of lowering dietary intake of fat and cholesterol in children with elevated low-density lipoprotein cholesterol. *JAMA*. 1995; 273: 1, 429-1, 435. (Hand search)

Hakanen M, Lagström H, Kaitosaari T, Niinikoski H, Näntö-Salonen K, Jokinen E, Sillanmäki L, Viikari J, Rönnemaa T, Simell O. [Development of overweight in an atherosclerosis prevention trial starting in early childhood: The STRIP study](#). *Int J Obes (Lond)*. 2006 Apr; 30(4): 618-626. PMID: 16446743. Hand-searched by Christine Williams: 04/2010

Johnson L, Mander AP, Jones LR, Emmett PM, Jebb SA. [Energy-dense, low-fiber, high-fat dietary pattern is associated with increased fatness in childhood](#). *Am J Clin Nutr*. 2008 Apr; 87(4): 846-854. PMID: 18400706.

Karaolis-Danckert N, Günther AL, Kroke A, Hornberg C, Buyken AE. [How early dietary factors modify the effect of rapid weight gain in infancy on subsequent body-composition development in term children whose birth weight was appropriate for gestational age.](#) *Am J Clin Nutr.* 2007 Dec; 86(6): 1, 700-1, 708. PMID: 18065589.

Niinikoski H, Lagström H, Jokinen E, Siltala M, Rönnemaa T, Viikari J, Raitakari OT, Jula A, Marniemi J, Näntö-Salonen K, Simell O. [Impact of repeated dietary counseling between infancy and 14 years of age on dietary intakes and serum lipids and lipoproteins: the STRIP study.](#) *Circulation.* 2007 Aug 28; 116(9): 1, 032-1, 040. Epub 2007 Aug 13. PMID: 17698729. Hand-searched by Christine Williams: 04/2010.

American Dietetic Association (21)

Alexy U, Sichert-Hellert W, Kersting M, Manz F, Schoch G. Fruit juice consumption and the prevalence of obesity and short stature in German preschool children: Results of the DONALD study. *Journal of Pediatric Gastroenterology & Nutrition.* 1999; 29: 343-249.

Berkey CS, Rockett HRH, Field AE, Gillman MW, Frazier AL, CamargoCA, Colditz GA. Activity, dietary intake, and weight changes in a longitudinal study of preadolescent and adolescent boys and girls. *Pediatrics.* 2000; 105: 1-9.

Bogaert N, SteinbeckKS, Baur LA, Brock K, Bermingham MA. Food, activity and family: Environmental vs. biochemical predictors of weight gain in children. *Eur J Clin Nutr.* 2003 Oct; 57(10): 1, 242-1, 249.

Boulton TJC & Magarey AM. Effects of differences in dietary fat on growth, energy and nutrient intake from infancy to eight years of age. *Acta Paediatrica.* 1995; 84: 146-150. *Adelaide Nutrition Study.*

Carruth BR, Skinner JD. The role of dietary calcium and other nutrient in moderating body fat in preschool children. *International Journal of Obesity.* 2001; 25: 559-566.

Davison KK, Birch LL. Child and parent characteristics as predictors of change in girls' body mass index. *Int J Obes.* 2001; 25: 1, 834-1, 842.

Eck LH, Klesges RC, et al. Children at familial risk for obesity: An examination of dietary intake, physical activity and weight status. *International Journal of Obesity.* 1992; 16: 71-78.

Francis LA, Lee Y, Birch LL. Parental weight status and girls' television viewing, snacking, and body mass indexes. *Obes Res.* 2003; 11: 143-151.

Gazzaniga JM, Burns TL. Relationship between diet composition and body fatness, with adjustment for resting energy expenditure and physical activity, in preadolescent children. *Am J Clin Nutr.* 1993; 58: 21-28.

Klesges RC, Klesges LM, Eck LH, Shelton ML. A longitudinal analysis of accelerated weight gain in preschool children. *Pediatrics.* 1995; 95: 126-130.

Lee Y, Mitchell DC, Smickiklas-Wright H, Birch LL. Diet quality, nutrient intake, weight status, and feeding environments of girls meeting or exceeding recommendations for total dietary fat of the American Academy of Pediatrics. *Pediatrics.* 2001; 107: e95.

Maffeis C, Talamini G, Tato L. Influence of diet, physical activity and parents' obesity on children's adiposity: A four-year longitudinal study. *Int J Obes.* 1998; 22: 758-764.

Magarey AM, Daniels LA, Boulton TJC, Cockington RA. Does fat intake predict adiposity in healthy children and adolescents aged 2-15 years? A longitudinal analysis. *Eur J Clin Nutr.* 2001; 55: 471-481.

Newby PK, Peterson KE, Berkey CS, Leppert J, Willett WC, Colditz GA. Dietary composition and weight change among low-income preschool children. *Arch Pediatr Adolesc Med.* August 2003; 157(8): 759-764.

Robertson SM, Cullen KW, Baranowski J, Baranowski T, Hu S, de Moor C. Factors related to adiposity among children aged 3 to 7 years. *J Am Diet Assoc.* 1999; 99: 938-943.

Rolland-Cachera MF, Deheeger M, Akrouit M, Bellisle F. Influence of macronutrients on adiposity development: a follow-up study of nutrition and growth from 10 months to 8 years of age. *Int J Obes Relat Metab Disord.* 1995; 19: 573-578.

Scaglioni S, Agostoni C, De Notaris R, Radaelli G, Radice N, Valenti M, Giovannini M, Riva E. Early macronutrient intake and overweight at five years of age. *Int J Obes*. 2000; 24: 777-781.

Shea S, Basch CE, Stein AD, Contento IR, Irigoyen M, Zybert P. Is there a relationship between dietary fat and stature or growth in children three to five years of age? *Pediatrics*. 1993; 92: 579-586. *Columbia University Study of Childhood Activity and Nutrition*.

Skinner JD, Bounds W, Carruth BR, Morris M, Ziegler P. Predictors of children's body mass index: a longitudinal study of diet and growth in children aged 2-8 years. *Int J Obes Relat Metab Disord*. 2004 Apr; 28(4): 476-482.

Skinner JD, Bounds W, Carruth BR, Ziegler P. Longitudinal calcium intake is negatively related to children's body fat indexes. *J Am Diet Assoc*. 2003 Dec; 103(12): 1, 626-1, 631.

Wang Y, Ge K, Popkin BM. Why do some overweight children remain overweight, whereas others do not? *Public Health Nutr*. 2003 Sep; 6(6): 549-558.

List of Excluded Articles with Reason

Article (A-M)	Reason for Exclusion
Aeberli I, Molinari L, Spinaz G, Lehmann R, l'Allemand D, Zimmermann MB. Dietary intakes of fat and antioxidant vitamins are predictors of subclinical inflammation in overweight Swiss children. <i>Am J Clin Nutr</i> . 2006 Oct; 84(4): 748-755. PMID: 17023700.	Does not answer question. Focused on predictors of subclinical inflammation.
Bas M, Altan T, Dinçer D, Aran E, Kaya HG, Yüksek O. Determination of dietary habits as a risk factor of cardiovascular heart disease in Turkish adolescents. <i>Eur J Nutr</i> . 2005 Mar; 44(3): 174-182. Epub 2004 May 21. PMID: 15309435.	Does not answer question. Focused on cardiovascular disease (CVD) as outcome.
Burke V, Beilin LJ, Durkin K, Stritzke WG, Houghton S, Cameron CA. Television, computer use, physical activity, diet and fatness in Australian adolescents. <i>Int J Pediatr Obes</i> . 2006; 1(4): 248-255. PMID: 17907332.	Cross-sectional study (study type on excluded criteria).
Campbell KJ, Crawford DA, Ball K. Family food environment and dietary behaviors likely to promote fatness in 5- to 6-year-old children. <i>Int J Obes (Lond)</i> . 2006 Aug; 30(8): 1, 272-1, 280. Epub 2006 Feb 21. PMID: 16491108.	Does not answer question. Looked at the effect of family food environment.
Campbell K, Waters E, O'Meara S, Summerbell C. Interventions for preventing obesity in childhood. A systematic review. <i>Obes Rev</i> . 2001 Aug; 2(3): 149-157. Review. PMID: 12120100.	Does not answer question. Focused on obesity interventions.
Colín-Ramírez E, Castillo-Martínez L, Orea-Tejeda A, Villa Romero AR, Vergara Castañeda A, Asensio Lafuente E. Waist circumference and fat intake are associated with high blood pressure in Mexican children aged 8 to 10 years. <i>J Am Diet Assoc</i> . 2009 Jun; 109(6): 996-1, 003. PMID: 19465181.	Does not answer question. Looked at increase in obesity associated with hypertension. Hypertension associated with increase fat intake? No direct association.

<p>Craeynest M, Crombez G, De Houwer J, Deforche B, De Bourdeaudhuij I. Do children with obesity implicitly identify with sedentariness and fat food? <i>J Behav Ther Exp Psychiatry</i>. 2006 Dec; 37(4): 347-357. Epub 2006 May 15. PMID: 16701077.</p>	<p>Does not answer question. Looked at cognitive-motivational theories of “fat food” intake.</p>
<p>Craeynest M, Crombez G, Koster EH, Haerens L, De Bourdeaudhuij I. Cognitive-motivational determinants of fat food consumption in overweight and obese youngsters: the implicit association between fat food and arousal. <i>J Behav Ther Exp Psychiatry</i>. 2008 Sep; 39(3): 354-368. Epub 2007 Sep 25. PMID:17964536.</p>	<p>Does not answer question. Looked at cognitive-motivational theories of “fat food” intake.</p>
<p>Donnelly JE, Sullivan DK, Smith BK, Jacobsen DJ, Washburn RA, Johnson SL, Hill JO, Mayo MS, Spaeth KR, Gibson C. Alteration of dietary fat intake to prevent weight gain: Jayhawk Observed Eating Trial. <i>Obesity (Silver Spring)</i>. 2008 Jan; 16(1): 107-112. PMID: 18223621.</p>	<p>Population was adult men and women.</p>
<p>Dubois L, Farmer A, Girard M, Peterson K. Regular sugar-sweetened beverage consumption between meals increases risk of overweight among preschool-aged children. <i>J Am Diet Assoc</i>. 2007 Jun;107(6): 924-934; discussion 934-5. PMID: 17524711.</p>	<p>Does not answer question. Looked at effect of sugar-sweetened beverage consumption.</p>
<p>Dubois L, Girard M, Potvin Kent M, Farmer A, Tatone-Tokuda F. Breakfast skipping is associated with differences in meal patterns, macronutrient intakes and overweight among pre-school children. <i>Public Health Nutr</i>. 2009 Jan; 12(1): 19-28. Epub 2008 Mar 18. PMID: 18346309.</p>	<p>Does not answer question. Outcomes focused on breakfast skipping.</p>
<p>Faith MS, Keller KL, Johnson SL, Pietrobelli A, Matz PE, Must S, Jorge MA, Cooperberg J, Heymsfield SB, Allison DB. Familial aggregation of energy intake in children. <i>Am J Clin Nutr</i>. 2004 May; 79(5): 844-850. PMID: 15113724.</p>	<p>Does not answer question. Looked at familial association of total energy and macronutrient intakes.</p>
<p>Gehling RK, Magarey AM, Daniels LA. Food-based recommendations to reduce fat intake: an evidence-based approach to the development of a family-focused child weight management programme. <i>J Paediatr Child Health</i>. 2005 Mar; 41(3): 112-118. PMID: 15790321.</p>	<p>Does not answer question. Looked at a weight management program.</p>
<p>Gray G. The voyage to McDonalds--short and long-term factors in the etiology of obesity in Māori children in Aotearoa. <i>Pac Health Dialog</i>. 2003 Sep; 10(2): 141-148. PMID: 18181426.</p>	<p>Does not answer question; essay.</p>
<p>Haerens L, Deforche B, Maes L, Brug J, Vandelanotte C, De Bourdeaudhuij I. A computer-tailored dietary fat intake intervention for adolescents: results of a randomized controlled trial. <i>Ann Behav Med</i>. 2007 Nov-Dec; 34(3): 253-262. PMID: 18020935.</p>	<p>Does not answer question. Focused on computer intervention.</p>
<p>Hassapidou M, Fotiadou E, Maglara E, Papadopoulou SK. Energy intake, diet composition, energy expenditure, and body fatness of adolescents in northern Greece. <i>Obesity (Silver Spring)</i>. 2006 May; 14(5): 855-862. PMID: 16855195.</p>	<p>Cross-sectional study (study type on excluded criteria).</p>

Kim MJ, McIntosh WA, Anding J, Kubena KS, Reed DB, Moon GS. Perceived parenting behaviours predict young adolescents' nutritional intake and body fatness . <i>Matern Child Nutr</i> . 2008 Oct; 4(4): 287-303. PMID: 18811793.	Does not answer question. Focused on parenting behaviors.
Knol LL, Haughton B, Fitzhugh EC. Dietary patterns of young, low-income US children . <i>J Am Diet Assoc</i> . 2005 Nov; 105(11): 1, 765-1, 773. PMID: 16256761.	Does not answer question. Focused on dietary patterns of low-income children.
Kuzawa CW, Adair LS, Avila JL, Cadungog JH, Le NA. Atherogenic lipid profiles in Filipino adolescents with low body mass index and low dietary fat intake . <i>Am J Hum Biol</i> . 2003 Sep-Oct; 15(5): 688-696. PMID: 12953181.	Does not answer question. Obesity measure is not the end point. Fat and obesity are covariates predicting lipid profiles.
Matheson DM, Wang Y, Klesges LM, Beech BM, Kraemer HC, Robinson TN. African-American girls' dietary intake while watching television . <i>Obes Res</i> . 2004 Sep; 12 Suppl: 32S-37S. PMID: 15489465.	Does not answer question. Looked at TV watching and dietary intake.
Miller S, Manlhiot C, Chahal N, Cullen-Dean G, Bannister L, McCrindle BW. Impact of increasing adiposity in hyperlipidemic children . <i>Clin Pediatr (Phila)</i> . 2008 Sep; 47(7): 679-684. Epub 2008 Jun 10. PMID: 18544656.	Does not answer question. Does not measure cause and effect.
Moore LL, Bradlee ML, Gao D, Singer MR. Low dairy intake in early childhood predicts excess body fat gain . <i>Obesity (Silver Spring)</i> . 2006 Jun; 14(6): 1, 010-1, 018. PMID: 16861606.	Does not answer question. Looked at low dairy intake related to gain in body fat.
Mundt CA, Baxter-Jones AD, Whiting SJ, Bailey DA, Faulkner RA, Mirwald RL. Relationships of activity and sugar drink intake on fat mass development in youths . <i>Med Sci Sports Exerc</i> . 2006 Jul; 38(7): 1, 245-1, 254. PMID: 16826021.	Does not answer question. Looked at activity and sugar intake related to fat mass development.
Murphy MM, Douglass JS, Johnson RK, Spence LA. Drinking flavored or plain milk is positively associated with nutrient intake and is not associated with adverse effects on weight status in US children and adolescents . <i>J Am Diet Assoc</i> . 2008 Apr; 108(4): 631-639. PMID: 18375219.	Does not answer question. Focused on consumption of flavored vs. plain milk related to nutrient intake and weight.

Article (N-Z)	Reason for Exclusion
Papandreou D, Rousso I, Malindretos P, Makedou A, Moudiou T, Pidonia I, Pantoleon A, Economou I, Mavromichalis I. Are saturated fatty acids and insulin resistance associated with fatty liver in obese children? . <i>Clin Nutr</i> . 2008 Apr; 27(2): 233-240. Epub 2008 Jan 30. PMID: 18234396.	Does not answer question. Focused on saturated fatty acids related to insulin resistance.
Plachta-Danielzik S, Landsberg B, Bosity-Westphal A, Johannsen M, Lange D, J Müller M. Energy gain and energy gap in normal-weight children: Longitudinal data of the KOPS . <i>Obesity (Silver Spring)</i> . 2008 Apr; 16(4): 777-783. Epub 2008 Feb 7. PMID: 18379562.	Does not answer question. Focused on energy gain and gap.

<p>Receveur O, Morou K, Gray-Donald K, Macaulay AC. Consumption of key food items is associated with excess weight among elementary-school-aged children in a Canadian first nations community. <i>J Am Diet Assoc.</i> 2008 Feb; 108(2): 362-366. PMID: 18237583.</p>	<p>Cross-sectional study (study type on excluded criteria).</p>
<p>Skinner JD, Bounds W, Carruth BR, Morris M, Ziegler P. Predictors of children's body mass index: A longitudinal study of diet and growth in children aged 2-8 years. <i>Int J Obes Relat Metab Disord.</i> 2004 Apr; 28(4): 476-482. PMID: 14993908.</p>	<p>Cross-sectional study (study type on excluded criteria).</p>
<p>Snoek HM, van Strien T, Janssens JM, Engels RC. Restrained eating and BMI: A longitudinal study among adolescents. <i>Health Psychol.</i> 2008 Nov; 27(6): 753-759. PMID: 19025271.</p>	<p>Does not answer question. Focused on restrained eating and weight.</p>
<p>Sunehag AL, Toffolo G, Campioni M, Bier DM, Haymond MW. Effects of dietary macronutrient intake on insulin sensitivity and secretion and glucose and lipid metabolism in healthy, obese adolescents. <i>J Clin Endocrinol Metab.</i> 2005 Aug; 90(8): 4, 496-4, 502. Epub 2005 May 31. PMID: 15928240.</p>	<p>Does not answer question. Looked at macronutrient intake related to insulin sensitivity and glucose and lipid metabolism.</p>
<p>Swinburn BA, Jolley D, Kremer PJ, Salbe AD, Ravussin E. Estimating the effects of energy imbalance on changes in body weight in children. <i>Am J Clin Nutr.</i> 2006 Apr; 83(4): 859-863. PMID: 16600939.</p>	<p>Does not answer question. Looked at energy imbalance related to weight.</p>
<p>Timpson NJ, Emmett PM, Frayling TM, Rogers I, Hattersley AT, McCarthy MI, Davey Smith G. The fat mass- and obesity-associated locus and dietary intake in children. <i>Am J Clin Nutr.</i> 2008 Oct; 88(4): 971-978. PubMed PMID: 18842783.</p>	<p>Cross-sectional study (study type on excluded criteria).</p>
<p>van der Horst K, Oenema A, Ferreira I, Wendel-Vos W, Giskes K, van Lenthe F, Brug J. A systematic review of environmental correlates of obesity-related dietary behaviors in youth. <i>Health Educ Res.</i> 2007 Apr; 22(2): 203-226. Epub 2006 Jul 21. Review. PMID: 16861362.</p>	<p>Does not answer the question. Focused on environmental factors.</p>
<p>Villa I, Yngve A, Poortvliet E, Grijbovski A, Liiv K, Sjöström M, Harro M. Dietary intake among under-, normal- and overweight 9- and 15-year-old Estonian and Swedish schoolchildren. <i>Public Health Nutr.</i> 2007 Mar; 10(3): 311-322. PMID: 17288630.</p>	<p>Cross-sectional study (study type on excluded criteria).</p>
<p>Watkins DC, Murray LJ, McCarron P, Boreham CA, Cran GW, Young IS, McGartland C, Robson PJ, Savage JM. Ten-year trends for fatness in Northern Irish adolescents: The Young Hearts Projects--repeat cross-sectional study. <i>Int J Obes (Lond).</i> 2005 Jun; 29(6): 579-585. PMID: 15889116</p>	<p>Cross-sectional study (study type on excluded criteria).</p>
<p>Yackobovitch-Gavan M, Nagelberg N, Demol S, Phillip M, Shalitin S. Influence of weight-loss diets with different macronutrient compositions on health-related quality of life in obese youth. <i>Appetite.</i> 2008 Nov; 51(3): 697-703. Epub 2008 Jul 4. PMID: 18652862.</p>	<p>Does not answer question. Focused on different macronutrient compositions.</p>
<p>Zalilah MS, Khor GL, Mirmalini K, Norimah AK, Ang M. Dietary intake, physical activity and energy expenditure of Malaysian adolescents. <i>Singapore Med J.</i> 2006 Jun; 47(6): 491-498. PMID: 16752017.</p>	<p>Cross-sectional study (study type on excluded criteria).</p>

